

# A Prospective Study of 200 Cases of Laparoscopically Operated Patients for Portsite Complications

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**Abstract:** Objective: To study the incidence of port site complications, complications related to different port size and port number in laparoscopically operated patients. Methods: The study was conducted in 200 patients operated laparoscopically in our hospital i.e. Sir Thakhtsinhji General Hospital, Bhavnagar during the period of JULY 2011 to JUNE 2013. Once the patient is selected, written and informed consent is obtained. They are then to be interviewed for detailed clinical history and subjected to investigations according to proforma. As per the Clinical judgment open and laparoscopic surgery is to be planned. Once the patient is treated by laparoscopic surgeries the patient will be examined for post-operative pain, infection and various other post-operative complications. Results: In my study 200 cases of laparoscopically operated were taken and followed for 6month after surgery. (single port appendicectomy 30, double port appendicectomy 26, more than two ports appendicectomy 76, laparoscopic hernioplasty 32, laparoscopic cholecystectomy 26, diagnostic laparoscopy 10. So single port site operated patients were 15%, double port site operated patients were 18% and three or more port site operated patient were 67%). The average age of around 29 years. There were 54% male & 46% female in the study. Early complications (At 1 months): Early port site pain is more common in laparoscopic cholecystectomy 20/26 (76%) than in single port appendicectomy 3/30 (10%), in double port appendicectomy 5/26 (19%), in three ports 26/76 (34%), with laparoscopic hernioplasty 14/32 (43%), with diagnostic laparoscopy 2/10 (20%). The incidence rate of immediate post-operative complications according to port site number were 10% port site pain in single port site surgery, 19% in two port site surgery and 45% in three port site surgery. The incidence rate of immediate port site pain appears to be 36% in 10 mm ports compared to 7% in 5 mm ports. Port site seroma was seen in three port lap appendicectomy in 2/76 patients (2.63%). The incidence rate of port site seroma was 0.4% in 10 mm ports compared to 0.3% in 5 mm ports. Infections at port site were seen in three port appendicectomy in 1/76 patient (1.31%) and with laparoscopic cholecystectomy 1/26 patient (4%). The incidence rate of port site infection was 0.8% in 10 mm ports, while no infection in 5 mm ports. Late Complications (At 6 Months): Port site hernia in laparoscopic cholecystectomy 1(4%) in epigastric region. The incidence rate of port site hernia appeared to be 0.4% in 10 mm port site compared to no hernia in 5 mm ports. No other complication was noted. Summary & conclusions: The overall port site complications rate were very low in all laparoscopically operated patients. The early and late complications like port site pain, port site seroma, port site infection, port site hernia occurred in single port site laparoscopic surgery were very low compared to two or more port site laparoscopic surgery. So single port site laparoscopic surgery and small size of port were better outcome than others. It is advisable to decrease the size of port and number of port site, which would decrease complications and discomforts to the patient.

**Keywords:** laparoscopy, port site complications, surgical

## 1. Introduction

Laparoscopy is the type of surgical procedure that allows a surgeon to access the inside of the abdomen and pelvis without having to make large incision in the skin. So it is also known as key hole surgery. Laparoscopy word is derived from Greek word lapara meaning "flank inside" and skoper meaning "to see".

Laparoscopy consists of creating pneumoperitoneum, primary and secondary port placements, different port closure techniques. Now a days use of laparoscopy is increasing because of certain advantages like decreased postoperative hospitalization, less postoperative pain, faster

improvement in quality of life, better cosmetic result and smaller scars. So it is necessary to study various post-operative complications related to laparoscopy. The most significant risk for laparoscopy are from trocar injuries during insertion into the abdominal cavity.

The risk of such injuries is increased in patients who have low body mass index or have a history of prior abdominal surgery. There may be an increased risk of hypothermia and peritoneal trauma due to increased exposure to cold, dry gases during insufflation. There are various port site complications noted in early and late post-operative periods like port site infection, port site seroma, port site hernia, port site metastasis, port site pain. The overall incidence of

complication in laparoscopic surgery is less compared to open surgery.

## 2. Aims & Objectives

1. To Study the Early & Delayed complications of port site in laparoscopic surgeries
2. To Study the complications in different numbers of port site in laparoscopic surgeries
3. To Study the incidence rate in different sizes of port
4. To Study the incidence rate of port site complication

## 3. Materials and Methods

The material consists of study of 200 patients operated laparoscopically in our hospital i.e. Sir Thakhtsinhji General Hospital, Bhavnagar during the period of JULY 2011 to JUNE 2013. The Protocol of the study was approved by the Ethical Committee of the institute. These patients were treated by laparoscopically with different types of infected (dirty) and non-infected surgeries (clean surgeries). The infected type surgeries were excluded from the study. All patients treated by whichever method were admitted and treated simultaneously. The interval between the treatment and review was 6 months. The instruments used in laparoscopy were sterilized by plasma sterilization and these were never reused in other surgery before plasma sterilization again. Port site discharge and seroma were routinely seen due to pressure leakage of current at port site due to wear and tear of surgical instrument, which was properly taken care in our study. Once the patient is selected, written and informed consent is obtained. They are then to be interviewed for detailed clinical history and subjected to investigations according to proforma. As per the Clinical judgment open and laparoscopic surgery is to be planned. Once the patient is treated by laparoscopic surgeries the patient will be examined for post-operative pain, infection and various other post-operative complications. During the whole course of study, patients are not subjected to any potential risks other than the risk of operative intervention. There was no case selection for each treatment modalities and it was on surgeon's choice.

The patients were divided into three categories according to the technique with which they were treated.

GROUP A: Includes laparoscopically operated patients by single port site

GROUP B: Includes laparoscopically operated patients by double port site

GROUP C: Includes laparoscopically operated patients by three or more port site

The interval between the treatment and review is 6 months. Each and every case will be studied in detail and will be followed up on 7<sup>th</sup> day, 1 month, 3 month and 6 month after discharge. The complications will be divided early (<1 month) and late (>1 month) and will be study in each group of patients and compare with each group using statistical chi square test.

## 4. Selection Criteria

The **inclusion** criteria are:

All patients who are undergoing laparoscopic surgery

The **exclusion** criteria are:

Patients converted from laparoscopy to open surgery or infected surgery

### • Pre-Operative Preparations

Patients were investigated as per proforma:

### • Pre-operative orders:

- a) Nil by mouth from night prior to surgery
- b) Written and informed consent for anesthesia and surgery
- c) Shaving from nipple to knee
- d) Anesthetic check-up
- e) Catheterization
- f) Prophylactic Antibiotics given 30mins before surgery, cefotaxime and repeated if surgery continues more than 3hours.

### • Anesthesia: general anesthesia.

• **Operative method:** To perform single, double and more than two ports laparoscopic appendicectomy, laparoscopic cholecystectomy and laparoscopic hernioplasty.

### • Post-operative management:

Intra venous drips as per requirements, intra venous antibiotics given and analgesics given as per need. The patients were given oral antibiotics for 3-5days and analgesics as per need. Dressings was done on post-operative day 2<sup>nd</sup> and stitches were removed on 10th day as per wound status. Patients were advised to follow at 1month and 6 months, we have followed up patients for 6months.

## 5. Results and Discussion

In my study 200 cases of laparoscopically operated were taken and followed for 6month after surgery. (single port appendicectomy 30, double port appendicectomy 26, more than two ports appendicectomy 76, laparoscopic hernioplasty 32, laparoscopic cholecystectomy 26, diagnostic laparoscopy 10. So single port site operated patients were 15%, double port site operated patients were 18% and three or more port site operated patient were 67%)

1) **Age group:** The study ranges from 0 to 79 years age group. Most patients were between 15 to 50 years age group mean age of study group is 29 year.

2) **Sex:** 54% were males and 46% were females.

3) **Early Complications :** (Within 1 month)

- a) **Port site pain:** Port site pain is more common in laparoscopic cholecystectomy 20/26 (76%) than in single port appendicectomy 3/30 (10%), in double port appendicectomy 5/26 (19%), in three ports 26/76 (34%), with laparoscopic hernioplasty 14/32 (43%), with diagnostic laparoscopy 2/10 (20%). The incidence rate of immediate post-operative complications according to port site number were 10% port site pain

in single port site surgery, 19 % in two port site surgery and 45 % in three port site surgery. When results were compared by applying chi square test, p value appears to be  $< 0.001$  which was statistically significant. The incidence rate of immediate port site pain appears to be 36% in 10 mm ports compared to 7% in 5 mm ports, which were compared by applying chi square test, p value appeared  $< 0.05$  which was statistically significant.

- b) **Port site seroma:** port site seroma was seen in three port lap appendectomy in 2/76 patients (2.63%). In other surgeries, no seroma was found. The incidence rate of port site seroma was 0.4% in 10 mm ports compared to 0.3% in 5 mm ports, which was appeared insignificant.
- c) **Port site infection:** infections at port site were seen in three port appendectomy in 1/76 patient (1.31%) and with laparoscopic cholecystectomy 1/26 patient (4%). The incidence rate of port site infection was 0.8% in 10 mm ports, while no infection in 5 mm ports, which was appeared insignificant.
- d) **Port site hernia:** no case was found

#### 4) Late Complications : ( At 6 Months)

**Port site hernia** in laparoscopic cholecystectomy 1(4%) in epigastric region. The incidence rate of port site hernia appeared to be 0.4 % in 10 mm port site compared to no hernia in 5 mm ports, which appeared statistically insignificant. No other complications were noted.

## 6. Summary

The overall port site complications rate were very low in all laparoscopically operated patients. The early and late complications like port site pain, port site seroma, port site infection, port site hernia occurred in single port site laparoscopic surgery were very low compared to two or more port site laparoscopic surgery. The overall port site complications rate were very low in small size of ports compared to large size of ports. The overall port site complications rate more in laparoscopic cholecystectomy than any other type of surgery. So single port site laparoscopic surgery and small size of port were better outcome than others.

## 7. Conclusion

- 1) We conclude that the chances of laparoscopic port site complications are very less if proper pre-operative and post-operative care taken and proper sterilization of instrument.
- 2) Regular maintaining of the Laparoscopic hand instruments should be done to prevent the leakage of cautery current to the skin.
- 3) It is advisable to decrease the size of port and number of port site, which would decrease complications and discomforts to the patient.
- 4) Use of cidex should be avoided in laparoscopic surgery.
- 5) Other methods of sterilizations like plasma sterilization before use of the instruments in laparoscopic surgery should be following to avoid port site complications.

## 8. Future Scope

This Comparison of different port site, number and size has bright future aspect in deciding the size and number of ports. Single port site laparoscopic surgery and small size of port were better outcome than others. So it is advisable to decrease the size of port and number of port site, which would decrease complications and discomforts to the patient.

## References

- [1] Hamzaoglu I, Baca HB, Boler DE, Polat E, Ozer Y. Is umbilical flora responsible for wound infection after laparoscopic surgery? *Surg Laparosc Endosc Percutan Tech* 2004;14(5):263–267. [PubMed]
- [2] Voitk AJ, Tsao SGS. The umbilicus in laparoscopic Surgery. *Surg Endosc*. 2001;15(8):878–881. [PubMed]
- [3] Neri V, Ambrosi A, Di Lauro G, Fersini A, Valentino TP. Difficult cholecystectomies: validity of the laparoscopic approach. *JLS*. 2003;7(4):329–333. [PMC free article] [PubMed]
- [4] Molloy D, Kaloo PD, Cooper M, Nguyen TV. Laparoscopic entry: a literature review and analysis of techniques and complications of primary port entry. *Aust N Z J Obstet Gynaecol*. 2002; 42(3):246. [PubMed]
- [5] Channa GA, Siddiqui AJ, Zafar SN. Open versus closed method of establishing pneumoperitoneum for laparoscopic cholecystectomy. *J Coll Physicians Surg*. 2009 Sep; 19(9):557-60.
- [6] Schwartz, 5th edition. Principles of Surgery. General Principles of Minimally Invasive Surgery: 429-453

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